

What is claimed is:

1. A PWM (pulse width modulation) control circuit for generating a PWM signal, comprising:
 - a counter for incrementing or decrementing a count value in accordance with a given operation clock;
 - an edge-point value setting register for storing an edge-point value which specifies a first edge-point at which the level of the PWM signal varies;
 - a PWM output circuit for varying the level of the PWM signal at said first edge-point specified by said edge-point value, based on said count value from said counter and said edge-point value from said edge-point value setting register;
 - a delay value setting register provided on low order side of said edge-point value setting register, for storing a delay value of at least one bit which specifies a delay time of said first edge-point; and
 - a period value setting register for storing a period value which specifies a period of the PWM signal,wherein said PWM output circuit delays said first edge-point by a period which is smaller than one-clock period of said operation clock, in accordance with said delay value stored in said delay value setting register.
2. The PWM control circuit as defined in claim 1,
 - wherein said delay value setting register stores one-bit delay value; and

wherein said PWM output circuit delays said first edge-point by one-half clock period of said operation clock, in accordance with said one-bit delay value stored in said delay value setting register.

3. The PWM control circuit as defined in claim 2,

wherein said PWM output circuit comprises:

a comparator for comparing said count value from said counter with said edge-point value from said edge-point value setting register to generate a first signal having a signal level which varies at said first edge-point specified by said edge-point value;

a delay circuit for generating a second signal having a signal level which varies at a point delayed from said first edge-point by one-half clock period of said operation clock, based on said first signal and said operation clock; and

a multiplexer for selecting said first signal when said one-bit delay value stored in said delay value setting register is at a first level, and for selecting said second signal when said one-bit delay value is at a second level.

4. The PWM control circuit as defined in claim 1,

wherein said delay value setting register stores an M-bit delay value; and

wherein said PWM output circuit delays said first edge-point by any one of substantially $\frac{1}{2}^M$ clock period, substantially $2/2^M$ clock period, . . . and substantially $(2^M - 1)/2^M$ clock period of said operation clock, in accordance with said M-bit delay value stored in said delay value setting register.

5. The PWM control circuit as defined in claim 4,

wherein said PWM output circuit comprises:

a comparator for comparing said count value from said counter with said edge-point value from said edge-point value setting register to generate a first signal having a signal level which varies at said first edge-point specified by said edge-point value;

a delay circuit for generating a second signal having a signal level which varies at a point delayed from said first edge-point by substantially $1/2^M$ clock period of said operation clock, a third signal having a signal level which varies at a point delayed from said first edge-point by substantially $2/2^M$ clock period of said operation clock, . . . and a 2^M - th signal having a signal level which varies at a point delayed from said first edge-point by substantially $(2^M - 1)/2^M$ clock period of said operation clock, based on said first signal, said operation clock and a given delay element; and

a multiplexer for selecting any of said first through 2^M - th signals in accordance with said M-bit delay value stored in said delay value setting register.

6. A microcomputer for performing information processing, comprising:
a programmable timer including the PWM control circuit as defined in claim 1; and
a processor for executing instructions and for performing processing for storing said edge-point and delay values in said edge-point and delay value setting registers in said PWM control circuit.

7. A microcomputer for performing information processing, comprising
a programmable timer including the PWM control circuit as defined in claim 2; and
a processor for executing instructions and for performing processing for storing said edge-point and delay values in said edge-point and delay value setting registers in said PWM control circuit.

8. A microcomputer for performing information processing, comprising:

a programmable timer including the PWM control circuit as defined in claim 3; and
a processor for executing instructions and for performing processing for storing said edge-point and delay values in said edge-point and delay value setting registers in said PWM control circuit.

9. A microcomputer for performing information processing, comprising:
a programmable timer including the PWM control circuit as defined in claim 4; and
a processor for executing instructions and for performing processing for storing said edge-point and delay values in said edge-point and delay value setting registers in said PWM control circuit.

10. A microcomputer for performing information processing, comprising:
a programmable timer including the PWM control circuit as defined in claim 5; and
a processor for executing instructions and for performing processing for storing said edge-point and delay values in said edge-point and delay value setting registers in said PWM control circuit.

11. Electronic equipment comprising:
the microcomputer as defined in claim 6;
a source of input data to be processed by said microcomputer; and
an output device for outputting an analog signal by using the PWM signal generated by said PWM control circuit included in said microcomputer.

12. Electronic equipment comprising:
the microcomputer as defined in claim 7:
a source of input data to be processed by said microcomputer; and

an output device for outputting an analog signal by using the PWM signal generated by said PWM control circuit included in said microcomputer.

13. Electronic equipment comprising:
the microcomputer as defined in claim 8;
a source of input data to be processed by said microcomputer; and
an output device for outputting an analog signal by using the PWM signal generated by said PWM control circuit included in said microcomputer.

14. Electronic equipment comprising:
the microcomputer as defined in claim 9;
a source of input data to be processed by said microcomputer; and
an output device for outputting an analog signal by using the PWM signal generated by said PWM control circuit included in said microcomputer.

15. Electronic equipment comprising:
the microcomputer as defined in claim 10;
a source of input data to be processed by said microcomputer; and
an output device for outputting an analog signal by using the PWM signal generated by said PWM control circuit included in said microcomputer.